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| APPLICATION NO | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO | CONFIRMATION NO |
|----------------|-------------|----------------------|--------------------|-----------------|
| 10 023,350     | 12 20 2001  | Darin A. Chan        | 50432-528          | 5761            |

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McDERMOTT, WILL & EMERY  
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Washington, DC 20005-3096

EXAMINER

NGUYEN, DAO H

ART UNIT PAPER NUMBER

2818

DATE MAILED: 05 16 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/023,350

Examiner

Dao H Nguyen

Applicant(s)

CHAN ET AL

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- \* ☒ Notice of References Cited (PTO-892)  
\* ☐ Interview Summary (PTO-413) Paper Notes

### **DETAILED ACTION**

1. In response to the communications dated 03/04/2003, claims 1-19 are active in this application.

### **Remarks**

2. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

### **Claim Objections**

3. Claim 19 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 18. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### **Claim Rejections - 35 USC § 102**

4. The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 in view of the AIPA and H.R. 2215 that forms the basis for the rejections under this section made in the attached Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-10, and 16 are rejected under 35 U. S. C. § 102 (e) as being anticipated by U.S. Patent Application No. 2001/0045561 by Hata et al.

Regarding claim 1, Hata discloses a method of manufacturing a semiconductor device, as shown in figure 1, comprising the steps of:

providing a silicon layer (2, 4) over an insulating layer 1, the silicon layer including a first portion (right portion) and a second portion (left portion);

partially removing the first portion (right portion) of the silicon layer (2, 4), wherein a thickness of the second portion (left portion) is greater than a thickness of the first portion (right portion). See figure 1 and paragraphs [0026]-[0027].

Regarding claim 2, Hata discloses the method wherein the first and second portions of the silicon layer initially have the same thickness.

Regarding claim 3, Hata discloses the method wherein the step of partially removing the first portion of the silicon layer includes etching the first portion. See paragraph [0027].

Regarding claims 4-10, Hata discloses all the claimed limitations. See paragraphs [0024]-[0031].

Regarding claim 16, Hata discloses a semiconductor device, as shown in figure 1, comprising:

- an insulating layer 1;

- a silicon layer (2, 4) over the insulating layer 1, the silicon layer including a first portion (right portion) and a second portion (left portion);

- wherein a thickness of the second portion is greater than a thickness of the first portion. See figure.

6. Claims 16-18 are rejected under 35 U. S. C. § 102 (b) as being anticipated by U.S. Patent No. 5,909,400 to Bertin.

Regarding claim 16, Bertin discloses a semiconductor device, as shown in figure 13, comprising:

- an insulating layer 139;

- a silicon layer over the insulating layer 139, the silicon layer including a first

wherein a thickness of the second portion is greater than a thickness of the first portion. See figures 6-8, 13, and column 4, line 29 to column 5, line 40.

Regarding claim 17, Bertin discloses the semiconductor device wherein a first transistor is formed in the first portion and a second transistor is formed in the second portion. See figure 13.

Regarding claim 18, Bertin discloses the semiconductor device wherein the first transistor includes source/drain regions formed with a first dopant (n-type) and the second transistor includes source/drain regions formed with a second dopant (p-type), and the diffusivity of the second dopant into silicon is greater than the diffusivity of the first dopant into silicon. See figure 13.

### **Claim Rejections - 35 U.S.C. § 103**

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made

Patent No. 5,909,400 to Bertin in view of the following remarks

Regarding claim 1, Bertin discloses a method of manufacturing a semiconductor device (figure 13), comprising the steps of:

providing a silicon layer 122 over an insulating layer 139, the silicon layer including a first portion (right portion) and a second portion (left);

partially growing the second portion (to form the thick portion) of the silicon layer 122, wherein a thickness of the second portion is greater than a thickness of the first portion. See figures 6-8, 12 and 13 and column 6, line 23 to column 7, line 9.

Though Bertin partially grows the second portion of the layer 122 to form a thick portion (122+ 121) and a thinner portion (122) (figures 12, 13) instead of first forming a thick layer and then partially removing a portion of the thick layer to form a thick portion and a thinner portion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Bertin so that the same thick and thin portions (122+ 121) and (122), respectively, being formed by first growing a thick layer and then partially removing the thick layer, since such a modification would have involved a mere change in the method of forming the device. also it has been held that a mere reversal of the method of forming a thick and thin portions of a layer on a semiconductor device involves only routine skill in the art.

Regarding claim 2 Bertin discloses the method wherein the first and second

Regarding claim 3-10, Bertin discloses all the claimed limitations. Note that these limitations are very well known in the art. See also column 6, line 23 to column 7, line 9 of Bertin.

Regarding claims 11 and 12, Bertin discloses all the claimed limitations. Note that it is obvious to one of ordinary skill in the art that isolating features 123 could be formed either before or after the first portion of the silicon layer being partially removed, since it is obvious that any of such order of forming the isolating features would not make any change in the spirit and scope of the invention of Bertin.

Regarding claim 13, Bertin discloses the method further comprising the step of forming a first transistor in the first portion and a second transistor in the second portion. See figure 13.

Regarding claim 14, Bertin discloses the method wherein the first transistor includes first source/drain regions and the second transistor includes second source/drain regions formed, and a depth of the second source/drain regions greater than a depth of the first soured/drain regions. See figures 6-8, 12, 13.

Regarding claim 15, Bertin discloses the semiconductor device wherein the first second transistor includes source/drain regions formed with a second dopant (p-type).



and the diffusivity of the second dopant into silicon is greater than the diffusivity of the first dopant into silicon. See figure 13.

### **Conclusion**

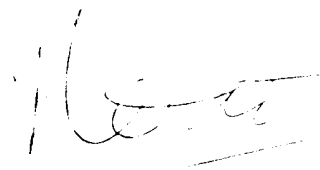
9. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dao H. Nguyen whose telephone number is (703) 305-1957. The examiner can normally be reached on Monday-Friday, 9:00 AM – 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (703) 308 - 4910. The fax numbers for Customer Service is (703) 872-9317, for the organization where this application proceeding is assigned is (703) 872-9318 for regular (Before Final) communications or (703) 872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Dao H. Nguyen  
Art Unit 2818  
May 5, 2003



HOAI HC  
PRIMARY EXAMINER